

## REVIEW OF McDUNNOUGH'S NEW CHECK LIST OF THE MACROLEPIDOPTERA

*Check List of the Lepidoptera of Canada and the United States of America. Part I. Macrolepidoptera.* By J. McDunnough. Chief, Systematic Entomology, Division of Entomology, Department of Agriculture, Ottawa, Ontario, Canada. 1938. 6.85 × 10.25 in. Memoirs of the Southern California Academy of Sciences, vol. 1, 275 p. Bound in paper. \$4.00.

This volume has been expectantly awaited by North American lepidopterists for several years. It brings up to date the first half of the now almost unobtainable Barnes and McDunnough list of 1917, with the additions and nomenclatorial changes that such involves. And, although from one viewpoint Dr. McDunnough is right in referring to the list as a "thankless job," it is a necessary one and one from which all American lepidopterists will obtain much information and help. It covers the butterflies, sphinxes, saturniids, etc., noctuoids, geometroids and ends with the Uraniodea (Epiplemidæ and Lacosomidæ). There is left then for the promised volume II the pyraloids, the true "micro" families including the Cossidæ and the primitive Hepialidæ, etc.

This list follows the gross sequence and is written in the same style as the 1917 list. Widely different arrangements of genera and species are found principally in the Noctuoidea (Phalænoidea) and Geometridæ (moths), as one might expect from the interests of the author. Much as individual lepidopterists might prefer this or that change, the fact remains that the list is an advance beyond the mere addition of names and nomenclatorial changes that have appeared in the last twenty years. Some of the shiftings are new, others foreshadowed by the author's recent published works. Lepidopterists are deeply indebted to the author for what he has done here to facilitate and advance the work.

By and large, he has been conservative about making changes, and a number of the features the reviewer would prefer different

are really hang-overs from the style of old lists. For instance, the sequence of families and superfamilies: it is questionable where to place the Sphingidæ but it would seem better to pass from the butterflies to the most nearly related group of moths, namely the Cossidæ—a family which in this arrangement is not even to be found in volume I. Some of these examples of sequence really represent limitations imposed by a linear arrangement but some certainly do not. For instance, why separate the more related Saturnoidea, Bombycoidea and Uranoidea by interspersing them with the Noctuoidea and Geometroidea?

Another relic the reviewer deplores is the paucity of generic synonymy. Even admitting that the citation of generic synonymy in a list might in some instances become complex, still it does not seem consistent to give full specific synonymy and omit the equally desirable generic synonymy.

More or less along this line is the habit, also a repeat from the 1917 list, of ignoring tribal and subgeneric groupings and names. In a sense this is partly the outcome of the compiler's use of many small genera. It probably always will be considerably a matter of individual opinion as to just what constitutes a genus in distinction to a subgenus and tribe or supergenus. Strict uniformity may be unobtainable, even with a group of specialists collaborating, but the reviewer does feel that regardless of whether the genera be made large or small these other group names, tribe (supergenous) or subgenus as the case may be, should be included in some appropriate manner. Certainly if they are to be accepted it would seem that they should be given with the proper species in any list. Grote had an acceptable system for giving what he considered subgenera (see his treatment of the genus *Agrotis* in the 1875 list of Noctuidæ).

Considerable dissention seems likely to arise over McDunnough's refusal to follow the rules of synonymy and homonymy strictly in some cases. The reviewer sympathizes with his view and dislikes seeing well-known names shifted about or sunk as homonyms. In a sense this shifting and changing of names is part of the business of the taxonomist and he can adjust himself without too much travail. But more than the taxonomist is involved. The biological and economic literature is affected and

at times becomes a terrible muddle, and the biological and economic worker who is in no sense responsible for the radical changes in his bibliographies is frequently confused and justly annoyed with nomenclature and thereby with taxonomists. The prime example at the moment is Huebner's "Erste Zutraege," acceptance of which would only shift established names about and advance science not at all, but which would cause great confusion in the taxonomic and non-taxonomic literature of this economically very important group (especially with the old names of "Noctuid" genera and even subfamilies). But even so "the laws" provide means that should be taken to ignore such disrupting papers, and the reviewer joins the author in hoping that the International Committee will invalidate Huebner's "Erste Zutraege" of 1808.

The reviewer would like to have seen a final list of names that have been dropped as not of this fauna (such as was in the 1917 list but is not in this list). The reviewer would also like to see included some symbol to designate "lost names," similar to the way doubtfully occurring species are indicated by an asterisk (Examples: *Agassizia urbicola* Behr, *Homophoberia cristata* Morrison, etc.).

In the Phalaenidæ (Noctuidæ) radical changes have resulted from the abandonment of the Hampsonian artificial classification. The result is an improved although by no means final sequence which in many general respects reminds one of the old Grote lists (1875, etc.) and hence the Smith and Dyar lists. Hampson's large series of volumes, the first world-wide revision, was more usable because it followed a rigid albeit artificial scheme, but it has to be replaced by more natural groupings even though the new groupings cannot be so readily separated by a "key."

The author and reviewer are both firm believers in habitus, and this belief is being upheld by recent structural work that is largely post-Hampson. One is wisely wary of the too rigid adherence to the structure of genitalia, but at least in this family the genitalia, female as well as male, are corroborating or being corroborated by other characters to a large degree. Also, recent work on the complexity of wing-pattern determination (Kühn, Henke, Feldotto, etc.) and its comparative morphology (Schwan-

witsch, Süffert, etc.) has given a concrete basis for appreciation of wing-pattern and thereby of habitus.

The changes in this family affect the subfamilies as well as the genera. Aside from the necessary changing of the names of the Agrotinæ to Phalaeninæ, Poliinæ to Hadeninæ and Erastrinæ to Acontiinæ, there is considerable alteration in the sequence of the subfamilies from the 1917 list sequence (more similar to old Grote, Smith and Dyar lists). First are the Pantheinæ followed by the *Acronicta* group which is split off as a separate subfamily. Then come the Phalæninæ, then Hadeninæ, then Cucculiinæ, and then the Amphipyrrinæ, a name used for the remainder of the former Acronictinæ after the removal of *Acronicta* and its few close relatives. This subdivision of the old Acronictinæ is highly desirable but still further subdivision of the Amphipyrrinæ seems inevitable. Then the Heliothinæ are segregated as a distinct subfamily and given a better position adjacent to *Heliothodes*, *Palada*, *Axenus*, etc., of the Amphipyrrinæ. Then the Catocalinæ and Erebinæ of Hampson have been intermingled in one subfamily, the Catocalinæ, as Miss Prout, the reviewer and some others have been claiming for years that they should. The Hypeninæ of the 1917 list is split into three subfamilies. Of these the Herminiinæ (Herminiini plus Heliini of Smith) is abundantly distinct as has been pointed out by Forbes; the Rivulinæ while not entirely satisfactory yet seems a good split at least tentatively; the Hypeninæ as here restricted more or less merge into the lower Catocalinæ and some may prefer to include them there. World-wide revision is needed in all the quadrifid groups as they reach their greatest development in the tropics of both hemispheres. This brief résumé of the subfamilies leads me to re-emphasize the desirability of the use of tribal names because more degrees of groupings are clearly needed within the subfamilies to present the desired pictures.

The final subfamily given for the Phalaenidæ is the Hyblæinæ. This follows both Hampson and all former American lists but is indubitably incorrect as was first pointed out by Forbes and has been agreed to by J. H. Comstock, Busck, Heinrich and others. The absence of a tympanum, the genitalia and the pupa are all definitely not of this family. The Hyblæidæ must be removed

either to the Pyralidoidea (Forbes) or to the true micros (Busck and Heinrich). In a sense this makes little difference to American lepidopterists as the single species recorded must be very rare here—the reviewer has never seen one from this country.

Incidentally, it is noted that although the name of the family has been changed from Noctuidæ to Phalaenidæ, the name of the superfamily has been left as Noctuoidea. This does not seem right.

Many genera of the Phalaenidæ obviously need revision but we cannot blame the author for such present unsatisfactory listings of species. An admirable example of this is the genus *Acronicta* where what was listed as thirteen species in the 1917 check list are now grouped under two following Benjamin's revision of this section of the genus whereas the rest of the genus remains in its previous state. There are many other examples: *Raphia*, *Renia*, *Gabara*, etc., etc.

The reviewer has made no attempt to search for specific errors but might cite the following random notes: "*Panula*" *scindens* (#3555) should be moved to *Isogona* as suggested by Barnes and Benjamin and as confirmed by recent examination of authentic material. Under #3547, *lunearis* should be *cunearis*. Under #3563, *capticola* should be *capiticola*. Under #3695, *henloa* should be *heuloa*. *Umbralis* (#3700) should be transferred to *Plathypena*. *Citata* (#3701) should be transferred to *Anepischetos*, and also (according to Schaus) *minualis* Guenée is a prior name for this species. *Anepischetos* (p. 128) should be *Anepischetos*. *Sangamonia* (#3800) is a synonym or at most a Mississippi valley race of *medialis* (#3798), and *inferior* (#3799) seems no more than a southern race of *caradrinalis* (#3797). *Athyrma* (p. 124) is badly misplaced (the reviewer's fault for not suggesting a better when recording it from North America); it should go with *Massala* and *Epidromia* (p. 122).

This list, and Part II to follow, will be the constant reference for all American Lepidopterists for a long time—the bible of the amateur, the index to collections and the starting point for subsequent work on the North American fauna. It is indispensable.

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